CURRICULUM VITÆ

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Education

2001 Ph.D. Physics - University of California, Riverside
Dissertation title: "Study of the Shadow of the Moon in VHE Cosmic Rays with the Milagrito Water Cherenkov Detector"
1996 M.S. Physics - University of California, Riverside
1993 B.A. Physics - University of Chicago

Academic Positions

2001-present Postdoctoral Researcher, Louisiana State University
1996-2001 Research Assistant, University of California, Riverside
1994-1996 Teaching Assistant, University of California, Riverside
1990-1991 Junior Research Technician, University of Chicago

Memberships

Member, Young Particle Physicists
Member, American Physical Society
Member, American Astronomical Society

Collaboration Memberships

FINeSSE (FNAL), 2003-present
MiniBooNE (FNAL), 2001-present
Milagro (LANL), 1996-2001

Research Experience

2001-present Postdoctoral Researcher, Louisiana State University

2003 MiniBooNE data analysis, primarily energy scale and angular reconstruction calibration of muons for ν_μ disappearance analysis, supernova/GRB neutrino emission search, instrumental background studies.

2003 Construction, testing, and data analysis of prototype detector for FINeSSE.

2002-present Co-convener of Detector Calibration/Monte Carlo group for MiniBooNE. Deputy detector operations czar for MiniBooNE.

2002-2003 Developed cosmic muon calibration system data acquisition hardware and software, hit and track reconstruction software. Developed and commissioned calibration triggers, hardware and software, for detector DAQ.

2001-2002 Commissioned laser calibration system, developed laser-based PMT calibration software. Developed PMT hit reconstruction software, including reconstruction of hits that saturate the QT electronics.

2001-2002 System administrator of local Unix cluster.

2001-2002 Led construction and installation of MiniBooNE detector calibration systems. Participated in construction and installation of MiniBooNE neutrino detector at FNAL.

2001 Co-authored Booster accelerator orbit correction program.

1996-2001 Research Assistant, University of California, Riverside

2000-2001 Analysis of moon shadow: established new upper limit on anti-proton content of VHE cosmic ray flux, first absolute calibration of energy scale of air shower array.

1999-2000 Installation and testing of WACT, the Wide Angle Cherenkov Telescope at LANL.

1999-2000 Installation/operation of full Milagro detector.

1998-1999 Analysis of Milagrito data, in particular excess of events from Crab Nebula and deficit of events from directions of moon and sun.

1998 Computer cluster and tape library design and operation for reprocessing and storage of Milagrito data.

1997-1998 Tested design of, built and analyzed data from individual muon detectors ("Igloos").

1996-1998 Construction, installation, commissioning, and operation of Milagrito, the prototype for Milagro.

Teaching Experience

2003 Mentored undergraduate students during summer, lectured in MiniBooNE summer student lecture series

2002 Mentored graduate and undergraduate students during summer

2001 Organized and lectured in MiniBooNE summer student lecture series

1995-1996 UCR Teaching Assistant, Calculus-based Physics Lab, and non-Calculus-based Astronomy

1994-1995 UCR Teaching Assistant, Calculus-based Physics Lab

Technical Skills

Computer Programming: C, C++, Fortran, PERL, HTML, Javascript, data reduction, signal analysis and maximum likelihood analysis techniques

Operating Systems: Fermi Linux, RedHat Linux, SGI Irix, VMS

Software: ROOT, PAW/PAW++, CERNLIB, Gnuplot, Mathematica, LaTeX

Hardware: CAMAC, NIM, Fastbus, data acquisition electronics, signal processing electronics, high voltage electronics assembly and repair, class IIIb laser, computer assembly, machine shop tools, some construction equipment

Publications

Sorel, M., Wascko, M.O., and Conrad, J., "Impact of Results from Short Baseline Oscillation Experiments on the Model of Oscillation-enhanced r-process in Core-Collapse Supernovæ", in preparation

BooNE Collaboration, "Calibration Systems for the MiniBooNE Experiment", to be submitted to NIM

FINeSSE collaboration, "A proposal for a Near Detector in the Booster Neutrino Beamline: FINeSSE", in preparation

Atkins, R. *et al.*, "Observation of TeV Gamma Rays from the Crab Nebula with Milagro Using a New Background Rejection Technique," The Astrophysical Journal, 595 (2003) 803-811

Falcone, A. *et al.*, "Observation of GeV Solar Energetic Particles from the 1997 November 6 Event Using Milagrito," Astrophysical Journal 588 (2003) 557-565

Atkins, R. *et al.*, "The High Energy Gamma Ray Fluence and Energy Spectrum of GRB 970417a from Observations with Milagrito," Astrophysical Journal 583 (2002) 824

K. Wang *et al.*, "A Survey of the Northern Sky for TeV Point Sources," Astrophysical Journal 558 (2001) 477-481

Atkins, R. *et al.*, "Evidence for TeV Emission from GRB 970417a," Astrophysical Journal Letters 555 (2000) L119

Atkins, R. *et al.*, "Milagrito, a TeV Air Shower Array," NIM A449 (2000) 478

Atkins, R. *et al.*, "TeV Observations of Markarian 501 with the Milagrito Water Cherenkov Detector," Astrophysical Journal Letters 525 (1999) L25

Technical Notes

These technical notes and memos are internal documents. Contact Janet Conrad or Bill Louis (MiniBooNE), and Gus Sinnis or Jordan Goodman (Milagro) for copies.

BooNE Technical Note, "Calibration Systems for the MiniBooNE Experiment", in preparation

BooNE Technical Note #105, "Energy Scale of Reconstructed Muons in MiniBooNE Using the Scintillating Calibration Cubes"

BooNE Technical Note #104, "Commissioning the Scintillating Calibration Cubes"

BooNE Technical Note #101, “Light Scattering with Bare Fiber Events”
BooNE Technical Note #99, “Study of Angular Resolution of Muons in MiniBooNE Using the Muon Tracker”
BooNE Technical Note #98, “Design and Commissioning of the Muon Tracker”
BooNE Technical Note #95, “BooNE Detector Monte Carlo Baseline Parameters and Variants”
BooNE Technical Note #93, “The Supernova Trigger Hotspot”
The MiniBooNE Exotic Physics Book
MiniBooNE Memo “Looking For An Event Excess Coincident With GRB030329”
MiniBooNE Memo, “400nm Laser Power Output Study”
Milagro Memo 8-10-00, “A Second Look at the Delta Theta Systematic Effect And The Moon Shadow”
Milagro Memo #54, “Delta(theta) vs. theta systematic and the Moon Shadow”, June 1999
Milagro Memo #18, “Electronic Drifts in the Igloos”, December 1997
Milagro Memo #7, “Igloo Studies”, August 1997

Selected Presentations

Neutrino Physics with FINeSSE, invited talk, CIPANP 2003, NY, NY, May, 2003
MiniBooNE: Up and Running, invited talk, Neutrinos and Implications for Physics Beyond the Standard Model Stony Brook, NY, 11 October, 2002
MiniBooNE Update, invited talk, XVI Rencontre de Physique de la Valle d’Aoste, LaThuile, Italy, 5 March, 2002
Search for Antiprotons in VHE Cosmic Rays with Milagrito, Invited Talk, Nuclear and Particle Physics Seminar, Columbia University, 22 October, 2001
Physics First!, HEPAP Subcommittee Presentation, Snowmass 2001
Accelerators High and Low, FNAL Town Meeting, 11 June, 2001
Search for Antiprotons in VHE Cosmic Rays with Milagrito, Invited Talk, HEP Seminar, The Ohio State University, 6 June, 2001
Search for Antiprotons in VHE Cosmic Rays with Milagrito, Invited Talk, Joint Theoretical and Astrophysical Seminar, FNAL, 4 May, 2001
Results from Milagrito on TeV Emission from AGN, APS Four Corners Sectional Meeting, 1 October, 1999
Studying Very High Energy Astrophysics with the Milagro Gamma Ray Telescope, LANL Student Association Colloquium, 24 September, 1999
Study of The Shadow of the Moon and Sun in VHE Cosmic Rays, 26th ICRC, August, 1999.
First Results from Milagrito, Poster Presentation, American Astronomical Society Meeting #193, 6-7 January, 1999
First Results from Milagrito, UNM/LANL Astrophysics Symposium, 30 April, 1999
Study of The Shadow of the Moon with Milagrito, IGPP Annual Meeting, 14-15 September, 1998
The Milagro Gamma Ray Observatory, American Physical Society Four Corners Sectional Meeting, 4 April, 1998

References

Primary References:

Prof. Richard Imlay
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